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ABSTRACT

This paper describes the online course, Pedagogy in Open Learning, offered by NITOL (Norwaynet with Information Technology for Open Learning). Target groups are teachers, developers, and providers of ODL (Open and Distance Learning). The main goal is to prepare a basis for development and applications of ODL material that uses ICT (Information and Communication Technology) as a medium to supplement and/or offer an alternative to traditional ways of learning. Topics covered in the course include: (1) introduction to ODL and to the technical basis for ICT-based ODL; (2) theories of learning (e.g., cognitivism, constructivism, situated learning) related to ODL; (3) structures of learning material, hyperstructures, different modes and media; (4) creation of a World Wide Web-based learning environment; (5) system dynamics and simulations as learning tools; and (6) design and development of learning environments, net-based support, discussions, etc. The paper also covers technical and organizational aspects, pedagogical and methodological approaches, and visions. (MES)

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Introducing ODL in Teacher Education - an On-Line Course on How to Create On-Line Learning Environments

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Abstract: Learning through practice has always been a sound principle. In this case it concerns learning how to construct ICT based ODL material by attending an Internet course that demonstrates the content and uses the 'learning by doing' slogan. The guidelines are based on experiences from different national and international ODL projects. It provides a basic understanding for newcomers and will hopefully also demonstrate new ideas for experienced developers in the field. The target groups are teachers, developers and providers of ODL, working or intending to work in the field of ODL, providing opportunities for life-long learning. Further on parts of the course seem to be of general interest for people collaborating across boarders. They seem to have a need for common competence in order to exchange information and knowledge. The learning environment in which the course takes place, is created as a series of examples of how to design and implement a virtual learning environment using multimedia.

The On-Line Course

Background

The NITOL group (Norwaynet with IT for Open Learning) (Ask, B., & Haugen, H., 1999) has for more than 5 years designed and created net based on-line courses. Based on demand for sharing our experiences from several projects and courses a new course was designed. This new on-line course on *Pedagogy in Open Learning* has been offered to national and international audiences since 1996. Every term it has undergone some revisions and it has gradually evolved into the form it has now. A major objective is to provide *guidelines* for the development, implementation and running of open and flexible, net-based learning environments. The guidelines are based on experiences from user trials and evaluation of several national and European projects, as well as on theoretical discussions. Experiences from earlier versions, have been worked into the new course. It has become part of IT-curriculum for teacher training at several institutions, and has been accepted for credits in different countries, with reference to the ECTS - European Credit Transfer System.

Target groups

Target groups are teachers, developers and providers of ODL, working or intending to work in the field of ODL, providing opportunities for life-long learning. Providers of in-service and further education for teachers are of particular interest as a target group. Teachers in secondary schools, academic staff at universities and colleges, personnel in charge of training programmes for corporations, companies and public administration, staff at adult education institutions, lifelong learning programmes etc. Students of pedagogy, of ICT or teacher training, will also benefit from the course. In their future jobs they need to be qualified for organising learning environments that exploit the potential of ICT. Parts of the course seem to be of special interest for people who collaborate across boarders and who work internationally.

Main goal

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The course Pedagogy in Open Learning (PiOL) intends to prepare a basis for development and applications of ODL material that uses ICT as a medium to supplement and/or offer an alternative to traditional ways of learning. In Norway every teacher is supposed to engage in ICT in two ways: to use ICT for learning purposes and to learn ICT for using purposes. This course forces them to do both. The students of this course shall learn how to design and implement learning material and environments that are open, flexible and readily accessible for different groups of users in search of education.

In addition, adult learners and people working in international organisations need a common competence in order to share know how and information. Parts of this course seem to be relevant for upgrading them.

The candidates shall be trained to act in the society in general and in the educational system in particular, as resource personnel for the exploitation of new ICT to

- create a basis for providing lifelong learning
- prepare 'just-in-time' learning facilities (when and where it is needed)
- implement new ways of teaching and learning
- offer courses to satisfy needs for new knowledge and skills
- assist in the process of creating a fruitful learning environment using multimedia technology

As part of teacher training this serves two purposes to:

- it introduces ICT-based ODL students and teachers attending further and in-service training
- it forces - or offers – the teacher trainers to engage and experience ICT-based ODL.

Content

The course is intended to function as netbased[1] background guidelines for development, organising and running ICT based ODL activities. It thus has to cover a wide variety of topics. On the basis of experiences, the following main topics are covered:

- Introduction to ODL and to the technical basis for ICT based ODL
- Theories of learning; cognitivism, constructivism, situated learning etc., related to ODL
- Structures of learning material, hyperstructures, different modes and media
- Creation of a web based learning environment
- System dynamics and simulations as learning tools
- Design and development of learning environment, net based support, discussions etc.
-

In addition, adult learners and people working in international organisations seem to have special interest in these topics:

- Collaborative learning; net based resources and facilities for interaction
- Learning organisations and lifelong learning
- Applications of networks and communication (Internet, www, collaborative tools etc.)
- Examples, demonstration of courses and lessons based on ICT/Internet

Most of the themes mentioned above, are fairly self-explanatory. The intention is to introduce some concepts and models relevant to ICT-based ODL, based on experiences and on-going work from the institutions responsible for the course. The students' own knowledge and skills are important resources in the learning environment of the course itself. Participants with theoretical and practical background in education and pedagogy, are particularly valuable for the further development of the learning environment. The practical approach also demonstrates advantages, difficulties or challenges, general freeware tools and possible drawbacks of on-line learning.

[1] The term 'netbased' should be construed broadly enough to include emerging technology such as high-bandwidth networks, wireless telecommunications, interactive video etc.

Technical and organisational aspects

Most of the course activities are now (1999) technically based on Internet and World Wide Web environments. A multimedia computer and network literacy is a prerequisite. At the same time it is assumed that a great part of the target group are not necessarily IT professionals, but do rather have their strengths in pedagogy or other professions. Several of the themes in the course concern issues related to practical applications of the relevant technologies, demonstrating examples and encouraging the students to practice a variety of tools themselves.

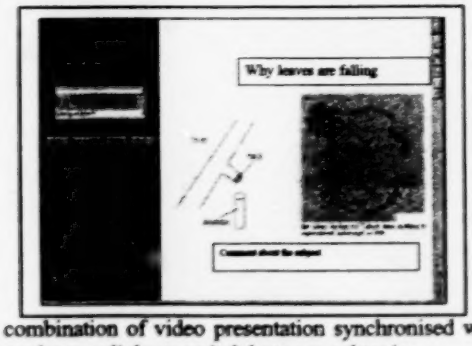
A particular challenge for educators developing ICT based learning material, is the inherent potential of hyper structures as compared to traditional, linear presentations of information. All 'lessons' of the learning material of the course are distributed through a fixed web address with links for downloading modules. Other parts of the learning material are based on other techniques, e.g. use of synchronised, interactive video and presentation programmes, use of collaborative tools such as Team Wave, in order to exchange information and know how.

In the EuroCompetence project (EuroCompetence, 1999) the parts of this course that are relevant for adult learners and people in international organisations will be offered as a separate course, called Learning to Learn by ICT. The course will be running during the spring 2000.

Discussions are mainly performed on News conferences, by links to individual 'workbooks' or collaborative tools. Personal messages are exchanged by e-mail and mail lists. But there are also options for automated support, e.g. FAQ, SOS, Oracle services and for synchronous net meetings etc. for exchange of views. Thus the exchange of experiences between all participants implies the opportunity of better understanding and insight into the problems arising.

It has been an active choice not to use proprietary software. The courses are developed on bases of general tools, Internet, www etc

The figure shows an example of one way of organising a learning environment. In this learning



environment there is a combination of video presentation synchronised with a power point presentation. The list to the left indicates keys or links to switch between subtopics.

Pedagogical and methodological approaches

Students of this course are supposed to have a certain background in general educational theories. The main idea behind presenting guidelines as an interactive course is based on the *learning-by-doing* principle. The focus is on the process rather than the outcome. The learning environment in which the course takes place, is created as a series of examples of how to design and implement a virtual learning environment using general tools and multimedia. For example, within this learning environment, the use of hypermedia is described as well as used as tools for management of the environment. When the students attend the

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course, they meet a learning environment that includes facilities to help them to manage their own learning environment. By implementing different guidelines/handbooks telling students for example how to create a WebPages, how to download files etc. students can immediately start to manipulate their learning environment. Access to facilities like on-line oracles as well as guidelines are components that add to a learning environment

Different tools for collaboration between participants are necessary part of the course. Furthermore, collaboration between teachers at different institutions occurs as an interesting component in this environment. A variety of professional profiles at the co-operating institutions strengthens the whole environment and even makes teachers take on the role of 'students'. In effect, learners, teachers and practitioners collaborate in constructing a hypermedia based learning environment. Electronic hypermedia based learning material constitutes a forum among and between students and instructors/teachers. It allows a high level of interaction for everyone, especially in raising questions and sharing access to the continuous discussions.

In a net-based learning environment like this, the role of the teacher is no longer defined by tradition, and learning is no longer seen as the passive acquisition or absorption of an established and often rigidly defined body of information. The former role of the teacher has been to acquire formal knowledge, find efficient ways of sharing it and to determine whether the students have learned what has been taught This has been the traditional role of the teacher, to have the major responsibility for what and how the students learn. (Koschmann, T. 1996). But to-days learning environment opens up for a discussion of what the role of the teachers is going to be: A sage on the stage or a guide on the side? (Retalis, S. & al. 1997). A virtual learning environment seems to indicate that teachers' tasks are moving from lecturing and 'teaching' towards supervising and assisting students. Students are becoming more responsible for discovery and self-learning while teachers take on the role of facilitators. Occupying a seat in a physical classroom for a specific period of time may soon become the exception rather than the rule.

In this learning environment both the teachers and the students will be challenged to adapt to their new roles. Teachers are asked to articulate more clearly their goals, objectives and expected outcomes, while students are asked to take on more responsibility for their own, self-directed study and learning. The use of 'notebook' forces the students to take part in a learning material 'production'. Access to each others 'notebooks' enriches the total environment and may create lots of professional discussion. The notebook also serves as part of the assessment procedure.

Visions

The PiOL course is created in order to prepare higher educational institutions and staff members for future requirements. The International Council for Distance Education, ICDE, predicted already in 1994 that there will be shifts

- from objective, general knowledge to constructed, adapted knowledge
- from an industrial to a knowledge based society
- from teaching and lecturing to facilitation of learning
- from books and paper based hand-outs to applications of ICT based material for learning
- from traditional universities and colleges to new structures not yet defined
-

The driving forces behind these changes are

- 'pushes' by the new information and communication technology, the information explosion and political/economic desires to increased productivity in education,
- 'pulls' by the changing job structures with new skills and knowledge requirements, R&D challenges within higher education, and a general desire for more education and better qualifications among the general public - a trend of lifelong learning.

In this environment ICT based open and flexible learning systems seem to be the nearest solution. Technology is continuously improving, providing faster, broad-band and more flexible systems that can offer even better learning environments than can be demonstrated today. Students of the PiOL course

should therefore not believe that they are fully trained for future tasks in the field by the time they pass their exams. But they should have learned how to learn, how to collaborate and how to develop new learning arenas for their own future students and have in mind that education should produce individuals who have a sound working knowledge base, who can use that knowledge when called upon to do so, and who are willing and able to continue the learning process after schooling. In order to meet these challenges, our prediction is that the field of ODL will develop and expand very rapidly in the years to come.

International collaboration and joint development implies a higher and broader spectre of professional skills and backgrounds. Teacher trainers and researchers in education are considered to be key personnel in this evolving of new learning facilities. Models presented here are only a first introduction to future development of ODL projects, intended for reaching larger audiences and making more learning *'available when and where it is needed'*.

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